

What is claimed is:

1. In an electronic device for use in assisting a hearing impaired patient having a microphone, a preamp, a signal processing stage, and an output amplifier, the improvement comprising:

a. an active low pass filter responsively coupled between said signal processing stage and said output amplifier having an adjustable overshoot.

2. The improvement of claim 1 wherein said output amplifier further comprises a class D amplifier.

3. The improvement of claim 2 further comprising a buffer stage responsively coupled intermediate said active low pass filter and said output amplifier.

4. The improvement of claim 3 wherein said hearing impaired patient has an outer auditory canal with a resonance curve and wherein said adjustable overshoot is sufficient to match the pass band of said electronic device to correspond to said resonance curve.

5. The improvement of claim 4 wherein said active low pass filter further comprises a variable resistor to provide said adjustable overshoot.

6. An apparatus comprising:

- a. a microphone;
- b. a preamp and signal processing stage responsively coupled to said microphone;
- b. an active low pass filter responsively coupled to said preamp and signal processing stage; and
- c. an output amplifier responsively coupled to said active low pass filter.

7. An apparatus according to claim 6 wherein said output amplifier further comprises a class D amplifier.

8. An apparatus according to claim 7 wherein said active low pass filter further comprises a component for adjusting the overshoot of said active low pass filter.

9. An apparatus according to claim 8 wherein said component adjusts the peak frequency of said active low pass filter.

10. An apparatus according to claim 9 wherein said component further comprises a variable resistor.

11. A method of assisting a hearing impaired patient comprising:

- a. measuring the resonance curve of the outer auditory canal of said hearing impaired patient;
- b. tuning the frequency response curve of an electronic hearing aid to correspond to with the measured resonance curve; and
- c. inserting said tuned electronic hearing aid into the ear of said hearing impaired patient.

12. A method according to claim 11 wherein said electronic hearing aid further comprises a class D output amplifier.

13. A method according to claim 12 wherein said electronic hearing aid further comprises an active low pass filter responsively coupled to said class D output amplifier.

14. A method according to claim 13 wherein said tuning step further comprises adjusting the overshoot of said active low pass filter.

15. A method according to claim 14 wherein said adjusting further comprises adjusting a variable resistor.

16. An apparatus comprising

- a. means for converting an acoustic signal into an electrical signal;
- b. means responsively coupled to said converting means for adjustably processing said electrical signal to produce a desired frequency response; and
- c. means responsively coupled to said processing means for amplifying said processed electrical signal.

17. An apparatus according to claim 16 wherein said amplifying means further comprises a class D amplifier.

18. An apparatus according to claim 17 wherein said processing means further comprises an active low pass filter.

19. An apparatus according to claim 18 wherein said active low pass filter further comprises means for adjusting the overshoot.

